SWAMP FOREST-BOG COMPLEX (Spruce Subtype)

Sites: Poorly drained bottomlands at high elevation.

Soils: Wet alluvial soils. Mapped as the Toxaway series (Cumulic Humaquept).

Hydrology: Palustrine. Seasonally to semipermanently saturated. Flooding frequency is not known. Some areas may receive groundwater seepage.

Vegetation: Forest with closed or open canopy and open or dense shrub layer, interspersed with small, open, boggy patches in slight depressions. Picea rubens is the dominant tree, with Tsuga canadensis, Betula alleghaniensis (lutea), Acer rubrum, Amelanchier arborea, and other species sometimes present. A dense shrub layer of Rhododendron maximum and Kalmia latifolia is usually present. Other shrubs may include Ilex verticillata, Ilex collina, Taxus canadensis, Viburnum nudum var. cassinoides, Aronia (Sorbus) melanocarpa, and Vaccinium spp. Herbs are generally sparse under the canopy but may be dense in openings. Species include Glyceria melicaria, Osmunda cinnamomea, O. regalis var. spectabilis, Maianthemum canadense, and various species of the Southern Appalachian Bog type. Sphagnum patches may occur scattered beneath the canopy as well as in small depressions.

Dynamics: The factors responsible for creating and maintaining these communities are not well known. Occurrence of spruce at unusually low elevations and the occurrence of northern disjunct species suggests that they are relicts from the Pleistocene glacial period, persisting in specialized environments. They may, however, represent a late stage of primary succession from more extensive open bogs.

Range: Several examples scattered in the Mountains.

Associations: Associated with Southern Appalachian Bog, Swamp Forest-Bog Complex (Typic Subtype), and upland communities, particularly Northern Hardwood Forest (Typic Subtype).

Distinguishing Features: Swamp Forest-Bog Complexes are distinguished from Southern Appalachian Bogs by their structure, which consists primarily of forested thickets with only small boggy openings. Boggy areas are less than one acre in size. They are distinguished from Red Spruce Forests by being wetter and having boggy openings and scattered Sphagnum mats. They also are generally at somewhat lower elevation than Red Spruce Forest. The Spruce subtype may be distinguished from the Typic Subtype by the composition of the forest, with Picea rubens as the dominant tree.

Variation: Not known.

Comments: This subtype is newly distinguished from the typic subtype, because of the unusual northern and high elevation disjunct species. It is extremely rare.

The classification of mountain boggy wetlands is still somewhat tentative, because of their variable vegetation and because little is known about their hydrology and nutrient dynamics. Inventory work currently in progress by Smith (In prep.) may provide additional information on the variety of these communities.

Rare Plant Species: Vascular -- Carex trisperma, Ilex collina, Taxus canadensis.

Synonyms:
Spruce swamp.

Examples:
Long Hope Valley, Ashe and Watauga counties (Weakley in prep.) (an extensive, well-developed example).
Alarka Laurel (Govus 1986) (a small, apparently marginal example).

References: Govus (1985), Weakley (in prep.).